DOCUMENT RESUME

ED 063 930 JC 720 161

AUTHOR Reed, M. Douglas
TITLE [Studies of Student Performance on the Comparative Guidance Placement Program.]
INSTITUTION Central Virginia Community Coll., Lynchburg.
REPORT NO RR-1-72
PUB DATE 72
NOTE 48p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Academic Performance; *College Entrance Examinations; College Placement; Comparative Analysis; Institutional Research; *Junior Colleges; National Norms; *Predictive Ability (Testing); *Standardized Tests; Statistical Analysis; *Student Ability
IDENTIFIERS CGP; *Comparative Guidance and Placement Program; Virginia

ABSTRACT

Data from the College Entrance Examination Board's Comparative Guidance and Placement (CGP) Program were used in these two studies of students at Central Virginia Community College (CVCC). In the first study, 1971 fall quarter performance in specific courses and in all courses was compared to CGP performance. The conclusions indicate that: (1) CGP scores in general are related to overall success in college course work; and (2) it is reasonable to use CGP performance as a predictor of specific course and overall success. The second study compared the ability (as measured by the CGP scores) of CVCC students, students in the Virginia Community College System, and students in all public comprehensive junior colleges for fall of 1970 and 1971, to help determine the academic progress of students at CVCC. There appears to be a clear difference in ability at entrance among community college students at the three levels (local, state, and national). For most of the subtests, CVCC students scored higher than the state junior college students, and the state group scored higher in ability than the national group. (RN)

ED 063930

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

[STUDIES OF STUDENT PERFORMANCE ON THE COMPARATIVE GUIDANCE PLACEMENT PROGRAM]

M. Douglas Reed
Director of Institutional Research
Central Virginia Community College
Lynchburg, Virginia 24502

1972

JC 720 161

UNIVERSITY OF CALIF.
LOS ANGELES

AUG 2 1972

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

Some Relationships Between CGP Performance and Course Success For Students Entering CVCC in 1971-72

Research Report No. 1-72

Director of Institutional Research

M. Douglas Reed

INTRODUCTION

In 1971-72, Central Virginia Community College is utilizing the Comparative Guidance Placement Program (CGP)[1] for the third year. Data derived from student scores in 1969-70 were used to make predictions in 1970-71 concerning academic placement. In 1970-71, CVCC counselors made academic placement decisions based on 1970-71 student performance, modifying the 1969-70 "cut-off" scores where they did not appear to be useful or appropriate. This year, based on performance data from 1971-72 entering students, cut off scores will be further modified as necessary.

PROBLEM

The problem to be discussed is whether the CGP scores are related to success in course work; and if so, what are the average levels of CGP performance at each grade level.

PROCEDURE

Fall quarter performance in course work was compared to CGP performance for students entering CVCC in 1971-72. This was done for specific courses as well as summarily for all students in all courses. Comparisons were made both by means of correlations and descriptive averages. To give a broad picture of the academic performance of entering students in the fall of 1971, the typical or average performance of each of the CGP subtests was studied for each of these five

---

[1]See CGP Interpretive Manual for Counselors, Administrators and Faculty 1969-70, CEEB, 1969 for a general description of this test.

categories: (1) Those who earned at least one "A" in the fall quarter; (2) Those who earned at least one "B" in the fall quarter; (3) "C"; (4) "D"; and (5) "F." Table one summarizes these data.

A closer analysis of academic performance was made by describing the typical or average performance on each of the CGP subtests for those earning grades of A, B, C, D, and F for each of the courses: Accounting 111 (Table 2), Arts 111 (Table 3), Biology 101 (Table 4), Business Administration 100 (Table 5), Chemistry 111 (Table 6), Data Processing 106 (Table 7), Drafting 111 (Table 8), Economics 211 (Table 9), English 101 (Table 10), English 111 (Table 11), Engineering 100 (Table 12), History 101 (Table 13), History 111 (Table 14), Health 100 (Table 15), Industrial 111 (Table 16), Mathematics 101 (Table 17), Mathematics 121 (Table 18), Mathematics 151 (Table 19), Mathematics 161 (Table 20), Mathematics 181 (Table 21), Natural Science 111 (Table 22), Psychology 128 (Table 23), Psychology 201 (Table 24), Secretarial Science 111 (Table 25), Secretarial Science 121 (Table 26), Sociology 101 (Table 27), Spanish 101 (Table 28).

In an effort to determine the relationship between the CGP subtest performances and these specific courses, a correlational study was made. Table 30 summarizes these data, indicating whether the correlation coefficients obtained are attributable to chance, or to some systematic relationship.

FINDINGS

Table 1.

The data indicate a definite upward trend in average scores on all subtests from the category of those students who earned at least

one "F" through category "A". The only exceptions are: (1) Academic Motivation, where the "F" group is .05 standard score points higher than the "D" group; and (2) Mosaic Comparisons, where the "D" group is .14 standard score points higher than the "C" group.

Tables 2-28.

In some instances marked upward trends on specific CGP subtest scores are noted from categories "F" through "A" for specific courses. For example the Reading, Verbal, Sentences, Mathematics II, and Letter Groups subtests of the CGP show an obvious upward trend in scores all the way from the "F" through "A" categories in Biology 101; from "F" through "A" in the Sentences and Academic Motivation subtests in English 111; from "F" through "A" in the Letter Groups subtest in History 111; from "F" through "A" in the Reading subtest in Industrial 111; from "F" through "A" in the Math II, Year 2000, and Academic Motivation subtests in Math 161; and from "F" through "A" in the Reading and Year 2000 subtests in Natural Science 111.

Looking only at the "D" through "A" categories, the Sentences, Math II, and Year 2000 subtests show obvious upward trends in Math 101. Those same categories show the same trends for the Reading and Verbal subtests for English 111 and for the Sentences, Year 2000, and Letter Groups subtests for Secretarial Science 111.

On the other hand, many categories for many courses do not show marked trends but have isolated exceptions, primarily where there are limited numbers of students in various categories (e.g., only 2 or 3).

Although obvious trends grade by grade are not always present, the general relationships between low CGP scores and low grades in courses

prevail. This offers support for decisions regarding probable performance levels in course work. The question remains: Although trends appear are they real or spurious? To get at whether apparent relationships between two variables are non-accidental and systematic, or attributable to statistical "chance" factors we examine the relationship by means of the coefficient of correlation. The coefficient of correlation is considered as an index of the tendency for pairs of measures to vary together. The greater the tendency, the higher the correlation. Ordinarily statisticians use the "product-moment" method to compute a coefficient of correlation and it is designated by the symbol "r." Since this may be found in any standard text on statistics we will not explain it here.

There are two ways to express the relationship between variable traits: a verbal description of its relative size and as an indication of its predictive power. Verbal descriptions are as follows[1]:

0.80 and up:	very high correlation
0.50 to 0.79:	substantial correlation
0.30 to 0.49:	some correlation
0.20 to 0.29:	slight correlation
0.00 to 0.19:	practically no correlation

The significance of any coefficient of correlation depends greatly upon the size of the sample on which it is based, and upon how representative the constituents are. Statisticians have devised methods for taking into account the size of the sample in determining the significance of correlation coefficient. Table 29 gives the

---

[1]C.P. Froehlich and K.B. Hoyt, Guidance Testing, 3rd ed. (Chicago: Science Research Associates, Inc., 1957, p. 59).

significance of correlations in terms of .01 and .05 levels which indicate the likelihood that a coefficient of a given magnitude would occur by chance alone, i.e., at the .01 level there is one chance in a hundred and at the .05 level there are five chances in a hundred.[2]

Table 30.

For specific courses for specific subtests we find that the Reading subtest is related significantly to grade performance in 44% (12 of 27) of the courses investigated. The Verbal subtest is related significantly to grade performance in 48% (13 of 27) of the courses investigated; Sentences in 52%; Math I in 33%; Math II in 37%; Year 2000 in 48%; Mosaic Comparisons in 15%; Letter Groups in 19%; and Academic Motivation in 22%.

More importantly, however, it is evident that small numbers in some courses contribute appreciably to the lack of significant correlations for many of the courses with subtests. Where sample sizes are over 3 (the minimum sample size which supports the assumption of a normal distribution), we find that Biology 101 is significantly correlated to all 9 CGP subtests (100%); English 101 with 5 of 9 (56%); and English 111 with 3 of 9 (33%). Where samples are over 30 in 8 of 9 subtests (i.e., when Math II is smaller, but all others are 30 or more), we find that Math 151 is significantly correlated to 7 of 8 subtests (87%); Math 101 and Math 161 with 6 of 8 (75%); Business Administration 100 and Natural Science 111 with 5 of 8 (62%); History 101 and 111 with 4 of 8 (50%); and Accounting 111 with 3 of 8 (37%).

---

[2]Ibid., pp. 59, 60.

On the other hand, courses with sample sizes under 30 account for 105 of the 157 tests of significance (67%) for which we found only a chance relationship.

Looking at the data another way, we find that some subtests correlate well with course grades, while other subtests do not. We see for example that of the 14 courses having sample sizes of 30 or greater, the Sentences subtest is significantly correlated with grade performance in 11 of 14 courses (79%), the Year 2000 subtest with 10 of 14 (71%), the Reading and Verbal subtests with 9 of 14 (64%), and the Academic Motivation subtest with 6 of 14 (43%).

For the Math subtests we should note that although the sample size for a course may be 30 or greater, since a student takes either Math I or Math II (but not both), some samples fall below 30 in Math II. For Math I, for the 11 courses which had sample sizes of 30 or greater, we find that the Math I subtest is significantly correlated with grade performance in 5 of them (45%). The Math II subtest is significantly correlated with grade performance in 2 of the 3 courses (67%) which had sample sizes of 30 or greater.

In other words, most of the non-significant findings are attributable to low sample sizes and two subtests (i.e., Mosaic Comparisons and Letter Groups) which apparently are not related to what is being measured by course grades.

CONCLUSION

Apparently CGP scores in general are related to overall success in college course work, at least insofar as it was investigated in this report. The data support the procedure of making general probability statements concerning course placement.

Since student performance in some of the specific courses investigated is significantly related to performance on specific subtests of the CGP, it is reasonable to use CGP performance as a predictor of both specific course success and overall success in the fall quarter.

We are less confident in making predictions concerning specific course success from CGP subtest performance where sample sizes are small. Although trends appear they may be spurious, and therefore further study is required. It appears evident that predictions this year based on data from 1971-72 are more reliable than those of 1970-71 based on data from 1969-70, due primarily to more detailed study and greater sample sizes.

AVERAGE PERFORMANCE OF ALL STUDENTS EARNING AT LEAST ONE OF ANY GRADE

TABLE I

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
A	Number	203	203	203	120	83	203	203	203	201
	Avg. St. Sc.	57.45	56.98	57.70	55.45	61.23	58.42	52.61	58.01	52.62
	Stand. Dev.	8.22	7.91	7.48	9.07	8.71	8.20	7.54	7.49	10.16
B	Number	433	433	433	283	150	433	430	433	418
	Avg. St. Sc.	55.86	54.77	55.26	54.63	59.09	56.23	51.33	56.36	51.77
	Stand. Dev.	8.69	8.21	8.07	8.63	7.56	8.88	7.41	7.92	9.10
C	Number	441	441	441	310	131	441	439	441	424
	Avg. St. Sc.	52.63	51.68	52.63	52.55	56.98	53.35	49.81	54.74	50.26
	Stand. Dev.	8.63	8.54	7.99	8.20	7.29	8.31	7.60	7.97	8.63
D	Number	177	177	177	128	47	177	176	177	164
	Avg. St. Sc.	51.06	50.10	50.54	50.61	53.89	51.20	49.95	53.54	49.00
	Stand. Dev.	10.16	9.55	7.87	8.16	7.11	10.20	8.45	8.16	8.46
F	Number	135	135	135	92	41	135	133	135	131
	Avg. St. Sc.	49.04	47.75	47.67	50.33	52.71	49.31	49.22	52.61	49.05
	Stand. Dev.	9.82	9.55	8.11	8.52	8.09	11.26	8.17	8.19	8.51

TABLE 2

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

ACCOUNTING 111

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		ACCT 111	ACCT 111	ACCT 111	ACCT 111	ACCT 111	ACCT 111	ACCT 111	ACCT 111	ACCT 111
A	Number	7	7	7	4	3	7	7	7	7
	Avg. St. Sc.	59.43	56.14	53.714	55.00	64.33	60.00	56.142	54.428	50.86
	Stand. Dev.	4.649	4.488	9.604	8.406	13.650	9.797	5.398	9.778	10.526
B	Number	11	11	11	8	3	11	11	11	11
	Avg. St. Sc.	53.73	52.73	49.55	53.00	62.67	57.82	50.818	57.181	51.36
	Stand. Dev.	9.880	5.917	9.872	8.847	10.016	11.703	9.558	9.589	9.200
C	Number	12	12	12	8	4	12	12	12	12
	Avg. St. Sc.	51.75	51.42	53.92	48.88	56.00	53.50	48.67	57.67	53.00
	Stand. Dev.	11.306	10.774	7.993	7.623	7.702	7.971	4.539	9.068	5.325
D	Number	10	10	10	7	3	10	10	10	9
	Avg. St. Sc.	50.20	50.10	48.40	49.714	61.00	53.40	48.50	51.60	48.11
	Stand. Dev.	7.685	9.608	5.541	8.199	5.196	8.099	7.763	7.961	9.061
F	Number	8	8	8	5	3	8	8	8	7
	Avg. St. Sc.	44.13	43.63	51.38	50.00	47.67	51.00	50.13	52.88	51.86
	Stand. Dev.	9.538	7.927	5.926	7.382	15.567	10.636	9.833	8.724	7.244

TABLE 3

CGP Subtests

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN: ARTS III		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III
A	Number	3	3	3	2	1	3	3	3	3
	Avg. St. Sc.	59.33	62.00	61.00	55.00	65.00	59.00	49.67	61.00	50.67
	Stand. Dev.	1.527	4.582	2.000	14.142	----	8.660	1.527	6.557	4.725
B	Number	12	12	12	10	2	12	12	12	10
	Avg. St. Sc.	56.33	53.92	54.00	52.50	49.50	57.00	54.08	54.33	51.90
	Stand. Dev.	8.304	9.179	8.168	8.436	3.535	9.135	5.017	6.414	10.049
C	Number	10	10	10	7	3	10	10	10	9
	Avg. St. Sc.	50.10	49.30	53.60	50.86	53.00	52.50	48.30	51.90	52.78
	Stand. Dev.	6.789	5.355	6.149	8.071	12.124	8.276	10.562	8.504	7.980
D	Number									
	Avg. St. Sc.									
	Stand. Dev.									
F	Number	1	1	1	1	-	1	1	1	1
	Avg. St. Sc.	47.00	45.00	49.00	40.00	----	27.00	48.00	46.00	49.00
	Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

TABLE 4

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
BIOLOGY 101		BIOL 101	BIOL 101	BIOL 101	BIOL 101	BIOL 101	BIOL 101	BIOL 101	BIOL 101	BIOL 101
A	Number	1	1	1	----	1	1	1	1	1
	Avg. St. Sc.	72.00	70.00	67.00	----	69.00	57.00	68.00	68.00	45.00
	Stand. Dev.	----	----	----	----	----	----	----	----	----
B	Number	35	35	35	22	13	35	35	35	35
	Avg. St. Sc.	59.09	57.60	58.914	59.64	63.92	57.94	52.800	59.314	53.171
	Stand. Dev.	6.917	7.601	6.818	6.358	5.936	8.320	7.347	5.097	7.968
C	Number	47	47	47	30	17	47	47	47	45
	Avg. St. Sc.	57.23	56.04	56.53	58.53	57.65	55.79	49.96	56.49	50.51
	Stand. Dev.	7.369	8.190	7.168	6.044	7.565	7.040	5.710	6.896	8.319
D	Number	29	29	29	22	7	29	29	29	28
	Avg. St. Sc.	52.83	51.310	51.068	51.272	54.71	52.45	50.59	53.17	48.82
	Stand. Dev.	7.290	6.698	6.881	5.616	4.151	6.641	5.130	8.581	7.547
F	Number	24	24	24	18	6	24	24	24	24
	Avg. St. Sc.	49.33	47.42	46.50	53.83	50.67	52.62	49.13	51.875	48.00
	Stand. Dev.	7.816	8.672	5.978	7.221	3.829	10.239	7.249	8.157	7.717

TABLE 5

CGP Subtests

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN: BUSINESS ADMINISTRATION 100		Reading BUAD 100	Verbal BUAD 100	Sentences BUAD 100	Math I BUAD 100	Math II BUAD 100	Year 2000 BUAD 100	Mos. Comp. BUAD 100	Letter Groups BUAD 100	Academic Mot. BUAD 100
A	Number	13	13	13	11	2	13	13	13	13
	Avg. St. Sc.	55.00	55.46	54.38	53.09	62.00	55.15	49.461	52.38	52.31
	Stand. Dev.	10.590	9.061	11.420	9.914	5.656	8.877	10.540	8.808	12.996
B	Number	35	35	35	24	11	35	35	35	35
	Avg. St. Sc.	53.74	52.51	51.40	50.83	59.64	56.14	50.29	53.89	51.285
	Stand. Dev.	8.067	7.875	10.296	8.159	8.127	11.471	7.629	9.257	7.135
C	Number	31	31	31	24	7	31	31	31	26
	Avg. St. Sc.	46.03	44.35	49.29	46.083	56.57	49.26	44.19	52.16	52.77
	Stand. Dev.	9.782	9.090	8.501	6.915	11.385	8.992	9.202	9.320	8.705
D	Number	14	14	14	10	3	14	14	14	13
	Avg. St. Sc.	44.64	45.64	45.285	43.20	53.67	44.36	53.21	51.00	52.00
	Stand. Dev.	11.365	11.22	9.042	5.959	9.291	12.067	9.082	10.926	5.131
F	Number	7	7	7	4	3	7	7	7	7
	Avg. St. Sc.	44.29	42.29	46.14	42.00	48.00	46.71	48.71	50.86	48.14
	Stand. Dev.	8.538	9.013	6.644	3.366	6.244	7.718	6.524	6.335	8.454

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

CHEMISTRY 111

TABLE 6

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111
A	Number	3	3	3	2	1	3	3	3	3
	Avg. St. Sc.	57.67	58.67	55.33	57.00	67.00	57.00	51.00	59.67	48.67
	Stand. Dev.	3.785	4.041	4.725	11.313	0.000	0.000	6.244	1.527	11.590
B	Number	8	8	8	4	4	8	8	8	8
	Avg. St. Sc.	55.75	54.875	57.38	64.50	62.25	60.75	55.75	58.63	48.88
	Stand. Dev.	9.192	8.043	5.208	4.203	8.808	8.746	3.693	8.192	14.740
C	Number	7	7	7	3	4	7	7	7	7
	Avg. St. Sc.	47.43	46.43	49.14	46.00	53.50	45.43	46.86	50.86	53.86
	Stand. Dev.	9.071	7.502	3.891	7.211	12.396	8.904	7.988	7.289	9.957
D	Number	2	2	2	1	1	2	2	2	2
	Avg. St. Sc.	53.00	48.00	58.00	54.00	61.00	55.50	52.50	61.00	54.50
	Stand. Dev.	7.071	4.242	9.899	0.00	0.000	2.121	12.020	4.242	10.606
F	Number	6	6	6	5	1	6	6	6	6
	Avg. St. Sc.	50.00	50.83	50.17	52.40	51.00	48.50	50.33	52.17	52.50
	Stand. Dev.	10.583	10.943	7.332	4.827	0.000	8.780	11.272	5.192	6.715

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

DATA PROCESSING 106

TABLE 7

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	DAPR 106	DAPR 106	DAPR 106	DAPR 106	DAPR 106	DAPR 106	DAPR 106	DAPR 106	DAPR 106
A Number	6	6	6	3	3	6	6	6	6
Avg. St. Sc.	61.67	56.83	52.33	56.33	69.00	60.50	53.67	57.33	51.83
Stand. Dev.	6.713	7.678	8.358	8.020	14.177	12.645	7.174	10.230	8.841
B Number	7	7	7	3	4	7	7	7	7
Avg. St. Sc.	55.14	57.14	57.00	51.33	60.00	63.00	55.00	59.57	52.29
Stand. Dev.	8.395	6.841	9.201	10.969	6.683	6.000	7.874	9.812	8.460
C Number	7	7	7	4	3	7	7	7	6
Avg. St. Sc.	51.00	50.00	46.43	51.25	56.00	51.86	49.57	50.57	49.67
Stand. Dev.	7.852	10.148	4.894	7.675	7.549	9.281	10.438	6.754	7.284
D Number	7	7	7	5	2	7	7	7	6
Avg. St. Sc.	42.86	42.86	44.86	47.400	39.500	45.43	52.29	53.571	51.00
Stand. Dev.	9.317	9.719	6.491	8.324	9.192	9.396	9.499	5.563	6.985
F Number									
Avg. St. Sc.									
Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

DRAFTING 111

TABLE 8

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		DRFT 111	DRFT 111	DRFT 111	DRFT 111	DRFT 111	DRFT 111	DRFT 111	DRFT 111	DRFT 111
A	Number	5	5	5	3	2	5	5	5	5
	Avg. St. Sc.	55.20	57.60	54.20	64.00	69.00	58.80	54.40	59.20	56.00
	Stand. Dev.	7.694	5.813	6.610	9.539	4.242	4.024	3.577	3.033	13.729
B	Number	10	10	10	6	4	10	9	10	10
	Avg. St. Sc.	47.60	46.50	47.70	58.33	54.00	50.70	53.44	55.70	53.20
	Stand. Dev.	8.408	6.381	8.124	9.688	6.480	10.995	4.126	8.097	8.728
C	Number	4	4	4	3	1	4	4	4	4
	Avg. St. Sc.	56.75	50.50	50.75	60.67	57.00	56.25	54.25	58.50	41.50
	Stand. Dev.	12.711	7.505	6.130	7.637	0.00	9.604	4.500	9.327	4.434
D	Number	1	1	1	1	0	1	1	1	1
	Avg. St. Sc.	45.00	40.00	38.00	52.00	0.00	33.00	46.00	58.00	60.00
	Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
F	Number	4	4	4	3	1	4	4	4	4
	Avg. St. Sc.	47.00	44.00	41.75	40.67	53.00	47.25	49.00	51.50	49.25
	Stand. Dev.	10.614	6.218	9.287	8.020	0.00	12.338	11.518	9.814	7.588

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

ECONOMICS 211

TABLE 9

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	ECON 211	ECON 211	ECON 211	ECON 211	ECON 211	ECON 211	ECON 211	ECON 211	ECON 211
A Number									
Avg. St. Sc.									
Stand. Dev.									
B Number	4	4	4	4	0	4	4	4	4
Avg. St. Sc.	57.00	58.25	53.75	57.75	0.00	52.50	47.00	57.50	37.50
Stand. Dev.	9.345	8.500	6.130	7.274	0.000	3.872	2.943	5.259	8.812
C Number	10	10	10	7	3	10	10	10	10
Avg. St. Sc.	53.30	54.90	55.70	49.428	64.00	52.20	54.20	52.90	50.70
Stand. Dev.	9.298	8.265	6.634	6.803	7.211	9.295	5.050	11.723	12.229
D Number	3	3	3	2	1	3	3	3	3
Avg. St. Sc.	63.67	63.00	58.00	44.50	55.00	59.00	50.00	56.00	46.00
Stand. Dev.	4.041	1.000	1.732	4.949	0.000	3.464	10.000	5.000	14.000
F Number	2	2	2	1	1	2	2	2	2
Avg. St. Sc.	44.00	50.000	51.00	53.00	46.00	37.50	28.50	49.00	56.50
Stand. Dev.	1.414	0.000	2.828	0.000	0.000	2.121	9.192	8.485	10.606

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

ENGLISH 101

TABLE 10

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101
A	Number	12	12	12	6	6	12	12	12	12
	Avg. St. Sc.	56.75	56.58	59.00	53.00	60.33	62.25	52.25	62.50	51.75
	Stand. Dev.	8.147	9.059	7.555	7.348	8.140	8.593	4.494	5.916	11.062
B	Number	57	57	57	37	20	57	57	57	53
	Avg. St. Sc.	56.81	55.26	56.04	54.30	57.50	56.58	52.53	56.74	53.57
	Stand. Dev.	7.104	6.653	7.272	8.205	8.774	7.905	8.833	7.536	9.851
C	Number	58	58	58	40	18	58	57	58	57
	Avg. St. Sc.	51.21	50.41	48.60	48.23	56.50	52.50	49.28	52.413	50.39
	Stand. Dev.	8.372	7.967	8.121	8.122	7.979	8.655	7.308	8.425	9.290
D	Number	12	12	12	9	2	12	12	12	11
	Avg. St. Sc.	48.83	48.00	48.92	47.22	55.00	48.50	52.00	53.00	46.27
	Stand. Dev.	10.624	8.665	9.297	12.163	12.727	13.944	9.881	8.811	6.198
F	Number	3	3	3	2	1	3	3	3	3
	Avg. St. Sc.	47.00	47.33	54.00	46.50	70.00	51.00	43.00	53.33	51.67
	Stand. Dev.	18.248	12.423	15.716	12.020	0.000	15.874	3.605	17.616	6.506

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN: ENGLISH 111		TABLE 11 CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111
A	Number	23	23	23	11	12	23	23	23	23
	Avg. St. Sc.	59.30	59.87	60.22	57.46	61.75	59.74	54.00	59.91	55.30
	Stand. Dev.	7.086	6.710	7.476	10.162	7.509	7.723	6.473	5.688	8.556
B	Number	75	75	75	52	23	75	75	75	74
	Avg. St. Sc.	56.81	55.55	56.53	54.35	59.26	55.64	49.85	55.93	50.62
	Stand. Dev.	8.327	7.997	6.816	7.278	6.803	7.987	6.558	7.913	8.738
C	Number	49	49	49	36	13	49	49	49	48
	Avg. St. Sc.	54.04	52.82	52.73	56.14	58.23	54.73	51.10	55.47	48.90
	Stand. Dev.	7.588	7.434	8.184	7.635	6.220	7.926	6.345	7.124	7.644
D	Number	12	12	12	8	4	12	12	12	11
	Avg. St. Sc.	56.42	53.17	50.58	53.50	54.25	49.50	48.58	54.00	45.73
	Stand. Dev.	8.680	10.752	8.349	7.578	9.673	8.339	5.664	6.252	6.783
F	Number	5	5	5	4	1	5	5	5	5
	Avg. St. Sc.	58.80	59.40	49.80	57.50	55.00	57.00	47.80	55.20	40.00
	Stand. Dev.	4.969	5.941	6.610	9.814	0.000	15.443	7.395	8.408	9.027

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

ENGINEERING 100

TABLE 12

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100
A	Number	2	2	2	1	1	2	2	2	2
	Avg. St. Sc.	62.50	61.00	62.50	73.00	64.00	64.50	56.00	63.00	41.00
	Stand. Dev.	4.949	2.828	2.121	0.000	0.000	2.121	2.828	7.071	8.485
B	Number	2	2	2	0	2	2	2	2	2
	Avg. St. Sc.	55.50	54.50	50.00	0.00	62.00	48.00	41.00	51.50	36.00
	Stand. Dev.	9.192	9.192	9.899	0.000	7.071	0.000	9.899	9.192	1.414
C	Number	5	5	5	4	1	5	5	5	5
	Avg. St. Sc.	48.00	47.00	51.80	60.75	55.00	61.80	50.20	56.80	43.00
	Stand. Dev.	8.276	8.916	9.808	5.057	0.000	9.148	4.086	7.661	2.449
D	Number	3	3	3	2	1	3	2	3	3
	Avg. St. Sc.	44.67	45.00	57.33	58.00	60.00	50.00	54.50	59.00	48.67
	Stand. Dev.	2.081	4.582	6.658	1.414	0.000	6.244	3.535	3.605	13.428
F	Number	17	17	17	8	9	17	16	17	17
	Avg. St. Sc.	49.76	47.12	45.94	55.50	53.22	49.41	53.31	55.71	51.59
	Stand. Dev.	11.042	8.666	8.219	9.426	9.270	11.816	5.793	9.425	7.786

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

HISTORY 101

TABLE 13

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101
A	Number	2	2	2	1	1	2	2	2	2
	Avg. St. Sc.	59.00	66.00	57.50	40.00	72.00	57.00	50.00	53.50	59.00
	Stand. Dev.	19.798	11.313	19.091	0.000	0.00	21.213	19.798	14.849	19.799
B	Number	18	18	18	11	7	18	18	18	18
	Avg. St. Sc.	61.33	61.33	59.22	57.73	63.00	59.33	52.94	58.89	50.33
	Stand. Dev.	7.194	7.178	5.275	7.669	8.524	8.331	5.915	5.799	8.124
C	Number	23	23	23	14	9	23	23	23	21
	Avg. St. Sc.	55.35	53.48	54.83	56.36	55.89	54.26	50.09	54.65	51.14
	Stand. Dev.	4.628	5.853	5.122	6.270	6.641	8.481	6.444	7.778	8.632
D	Number	4	4	4	2	2	4	4	4	4
	Avg. St. Sc.	55.25	53.75	54.00	52.00	59.00	56.25	48.00	59.00	45.50
	Stand. Dev.	13.25	14.66	10.392	16.970	4.242	18.553	10.099	8.906	10.083
F	Number	6	6	6	3	3	6	6	6	6
	Avg. St. Sc.	54.33	54.50	51.00	54.33	59.33	51.00	45.00	56.67	55.17
	Stand. Dev.	4.226	5.753	6.000	5.507	2.516	10.217	9.295	5.573	11.478

22

TABLE 14

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

HISTORY 111

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		HIST 111	HIST 111	HIST 111	HIST 111	HIST 111	HIST 111	HIST 111	HIST 111	HIST 111
A	Number	7	7	7	6	1	7	7	7	7
	Avg. St. Sc.	55.71	55.86	60.29	57.67	66.00	56.14	52.00	59.71	57.29
	Stand. Dev.	5.023	7.151	7.064	9.647	0.000	9.118	5.744	6.575	10.061
B	Number	29	29	29	18	11	29	29	29	28
	Avg. St. Sc.	58.48	56.24	57.00	58.28	60.18	56.48	52.59	57.72	54.04
	Stand. Dev.	9.206	8.662	7.874	7.736	6.896	7.940	6.549	8.070	7.767
C	Number	44	44	44	35	9	44	44	44	43
	Avg. St. Sc.	53.50	52.75	53.98	54.00	58.11	53.86	50.16	55.89	49.53
	Stand. Dev.	7.641	7.433	7.822	7.178	7.672	7.43	5.636	8.392	7.914
D	Number	12	12	12	7	5	12	12	12	12
	Avg. St. Sc.	52.92	51.67	50.33	54.86	54.80	54.25	50.67	55.42	42.50
	Stand. Dev.	8.306	7.302	7.714	6.743	4.381	10.737	4.735	6.388	7.416
F	Number	13	13	13	10	3	13	13	13	12
	Avg. St. Sc.	54.92	53.62	50.92	52.10	58.67	52.38	46.23	54.85	46.75
	Stand. Dev.	10.363	11.608	11.463	7.837	5.773	11.463	8.348	7.893	7.423

TABLE 15

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

HEALTH 100

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		HLTH 100	HLTH 100	HLTH 100	HLTH 100	HLTH 100	HLTH 100	HLTH 100	HLTH 100	HLTH 100
A	Number	12	12	12	7	5	12	12	12	12
	Avg. St. Sc.	56.58	55.08	56.42	52.86	50.60	55.00	50.50	56.83	50.08
	Stand. Dev.	6.542	6.855	5.680	7.033	7.300	9.936	7.971	8.952	8.338
B	Number	7	7	7	5	2	7	7	7	7
	Avg. St. Sc.	52.43	52.57	54.57	51.00	57.50	54.00	49.29	54.14	53.33
	Stand. Dev.	12.528	12.541	9.306	10.488	0.707	12.961	6.897	8.355	4.718
C	Number									
	Avg. St. Sc.									
	Stand. Dev.									
D	Number									
	Avg. St. Sc.									
	Stand. Dev.									
F	Number	2	2	2	2	0	2	2	2	2
	Avg. St. Sc.	43.50	46.50	52.00	45.00	0.00	51.00	51.00	50.50	54.00
	Stand. Dev.	4.949	0.707	7.071	2.828	0.000	0.000	1.414	0.707	21.213

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

INDUSTRIAL 111

TABLE 16

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	INDT 111	INDT 111	INDT 111	INDT 111	INDT 111	INDT 111	INDT 111	INDT 111	INDT 111
A Number	2	2	2	2	0	2	2	2	2
Avg. St. Sc.	59.00	60.50	60.00	67.00	0.00	66.00	58.50	57.00	33.50
Stand. Dev.	0.000	2.121	1.414	8.485	0.000	4.242	6.363	1.414	2.121
B Number	3	3	3	1	2	3	3	3	3
Avg. St. Sc.	54.33	50.00	47.67	49.00	57.00	45.00	52.33	47.67	47.33
Stand. Dev.	5.033	2.645	5.033	0.000	0.000	3.000	3.785	6.429	9.609
C Number	1	1	1	0	1	1	1	1	1
Avg. St. Sc.	51.00	41.00	39.00	0.00	53.00	63.00	61.00	60.00	43.00
Stand. Dev.	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.001
D Number	5	5	5	4	1	5	5	5	5
Avg. St. Sc.	50.80	47.20	49.00	60.25	45.00	57.00	56.60	59.60	48.60
Stand. Dev.	16.192	8.757	7.314	6.291	0.000	9.721	4.505	5.224	11.781
F Number	6	6	6	4	2	6	5	6	6
Avg. St. Sc.	44.00	40.83	38.50	47.25	47.50	37.50	45.40	49.33	50.83
Stand. Dev.	6.228	3.430	5.468	13.073	9.192	9.049	7.266	10.500	5.636

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

MATHEMATICS 101

TABLE 17

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101
A Number	14	14	14	3	11	14	14	14	13
Avg. St. Sc.	54.214	53.79	56.79	60.00	58.73	61.50	52.86	59.93	53.69
Stand. Dev.	9.799	9.609	6.727	3.605	12.034	8.131	3.779	6.195	11.919
B Number	10	10	10	6	4	10	10	10	10
Avg. St. Sc.	56.30	56.10	50.60	55.33	51.75	53.10	49.20	54.20	49.60
Stand. Dev.	8.233	8.412	7.705	5.537	5.97	13.641	8.625	9.330	8.884
C Number	8	8	8	7	1	8	8	8	7
Avg. St. Sc.	51.00	49.00	49.13	49.00	49.00	51.38	55.25	55.13	49.43
Stand. Dev.	7.171	8.263	4.969	6.082	0.000	4.373	10.347	6.937	6.754
D Number	8	8	8	7	1	8	8	8	7
Avg. St. Sc.	44.50	45.88	47.50	49.71	46.00	47.25	49.00	49.00	56.14
Stand. Dev.	10.042	9.657	5.732	4.309	0.000	9.587	9.365	6.256	4.913
F Number									
Avg. St. Sc.									
Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

MATHEMATICS 121

TABLE 18

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		MATH 121	MATH 121	MATH 121	MATH 121	MATH 121	MATH 121	MATH 121	MATH 121	MATH 121
A	Number	8	8	8	5	3	8	8	8	8
	Avg. St. Sc.	55.63	54.00	52.50	58.20	55.67	62.63	54.38	59.75	45.50
	Stand. Dev.	7.347	9.411	11.032	11.122	7.371	7.927	7.670	5.147	9.023
B	Number	6	6	6	5	1	6	5	6	6
	Avg. St. Sc.	51.83	51.17	55.50	63.00	55.00	60.00	52.40	58.50	45.67
	Stand. Dev.	9.968	7.833	6.715	7.483	0.000	9.674	5.683	6.252	10.764
C	Number	5	5	5	0	5	5	5	5	5
	Avg. St. Sc.	53.60	51.80	52.60	0.00	57.40	49.20	48.60	54.80	41.20
	Stand. Dev.	5.899	5.263	5.727	0.000	7.569	5.449	8.590	5.805	8.438
D	Number	1	1	1	1	0	1	1	1	1
	Avg. St. Sc.	69.00	56.00	49.00	54.00	0.00	63.00	54.00	60.00	47.00
	Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
F	Number									
	Avg. St. Sc.									
	Stand. Dev.									

27

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

MATHEMATICS 151

TABLE 19

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151
A Number	14	14	14	10	4	14	14	14	14
Avg. St. Sc.	55.29	53.79	58.14	51.70	59.75	60.43	52.79	57.43	54.36
Stand. Dev.	8.361	6.885	5.709	7.498	4.645	5.243	8.594	8.354	9.228
B Number	11	11	11	8	3	11	11	11	11
Avg. St. Sc.	51.00	51.00	57.00	54.88	62.67	59.45	50.09	54.64	56.45
Stand. Dev.	12.049	8.342	6.196	10.986	4.163	5.820	8.395	11.369	7.979
C Number	11	11	11	8	3	11	11	11	10
Avg. St. Sc.	50.91	48.27	54.18	49.50	53.00	52.09	48.82	55.27	49.30
Stand. Dev.	10.774	10.169	4.874	7.111	3.464	8.723	7.480	7.156	8.165
D Number	5	5	5	5	0	5	5	5	5
Avg. St. Sc.	55.00	55.80	55.20	47.80	0.00	54.00	46.00	54.40	51.20
Stand. Dev.	5.099	9.418	7.563	3.033	0.000	5.612	14.404	6.655	7.981
F Number	9	9	9	6	2	9	9	9	8
Avg. St. Sc.	41.56	40.00	44.56	39.50	44.50	43.33	52.89	46.44	47.75
Stand. Dev.	11.001	9.327	6.540	5.049	2.121	11.434	8.373	9.302	8.795

TABLE 20

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

MATHEMATICS 161

	CGP Subtests								
	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161
A Number	9	9	9	4	5	9	9	9	9
Avg. St. Sc.	62.33	59.56	62.78	60.00	69.20	61.67	57.89	62.44	54.11
Stand. Dev.	8.185	10.393	7.479	2.828	3.898	6.892	5.861	4.003	8.565
B Number	12	12	12	6	6	12	12	12	12
Avg. St. Sc.	58.67	56.00	57.583	58.83	64.50	58.75	50.67	60.92	52.83
Stand. Dev.	7.889	8.800	9.248	10.303	7.368	7.932	5.565	5.212	7.929
C Number	21	21	21	12	9	21	21	21	21
Avg. St. Sc.	52.67	53.43	55.52	60.33	60.44	56.29	51.38	57.62	51.38
Stand. Dev.	6.491	77.331	6.592	5.532	4.772	5.840	5.678	6.924	9.329
D Number	10	10	10	6	4	10	10	10	10
Avg. St. Sc.	57.90	58.20	58.30	60.83	58.25	56.10	48.80	59.40	51.22
Stand. Dev.	7.355	9.065	5.437	4.215	5.619	8.13	6.069	4.033	11.30
F Number	8	8	8	4	4	8	8	8	7
Avg. St. Sc.	52.38	53.25	48.50	52.75	56.75	54.00	49.88	56.50	43.29
Stand. Dev.	10.609	9.881	10.042	8.460	6.075	11.563	6.424	6.676	3.728

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

MATHEMATICS 181

TABLE 21

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181
A Number	7	7	7	5	2	7	7	7	7
Avg. St. Sc.	60.71	56.71	58.29	59.40	56.00	54.86	51.57	57.00	58.86
Stand. Dev.	6.156	5.964	7.341	1.516	0.000	7.081	5.769	6.582	4.741
B Number	12	12	12	7	5	12	11	12	11
Avg. St. Sc.	55.33	53.92	51.25	56.14	54.20	55.25	53.09	55.58	53.82
Stand. Dev.	8.855	7.440	9.036	9.856	4.086	8.136	4.989	7.971	9.683
C Number	14	14	14	11	3	14	14	14	14
Avg. St. Sc.	47.50	47.64	51.93	53.18	54.67	52.07	49.50	57.14	51.50
Stand. Dev.	8.336	9.178	7.405	7.305	1.527	6.182	6.768	5.531	10.754
D Number	13	13	13	9	4	13	13	13	12
Avg. St. Sc.	55.08	53.23	53.31	55.78	50.25	56.54	48.00	52.92	50.92
Stand. Dev.	11.600	10.802	6.908	5.995	3.774	11.281	10.263	9.894	7.329
F Number	6	6	6	5	1	6	6	6	6
Avg. St. Sc.	52.33	47.67	49.33	51.20	51.00	49.50	50.83	52.00	46.17
Stand. Dev.	5.316	7.554	8.733	7.259	0.000	12.833	2.401	5.215	8.975

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

NATURAL SCIENCE 111

TABLE 22

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	NASC 111	NASC 111	NASC 111	NASC 111	NASC 111	NASC 111	NASC 111	NASC 111	NASC 111
A Number	2	2	2	2	0	2	2	2	2
Avg. St. Sc.	62.00	63.50	60.00	58.50	----	60.00	54.50	57.00	50.50
Stand. Dev.	9.899	12.020	9.899	7.778	----	4.242	0.707	8.485	4.949
B Number	15	15	15	8	7	15	15	15	13
Avg. St. Sc.	58.07	56.67	55.60	53.50	54.00	58.00	52.93	56.00	54.769
Stand. Dev.	4.463	3.885	5.913	9.561	8.366	7.828	6.595	8.928	13.077
C Number	21	21	21	15	6	21	21	21	21
Avg. St. Sc.	55.81	55.29	57.62	54.33	59.83	56.57	53.33	58.19	54.14
Stand. Dev.	8.623	8.050	6.028	5.984	9.867	7.723	8.748	7.318	8.945
D Number	6	6	6	5	1	6	6	6	6
Avg. St. Sc.	45.83	44.00	50.50	47.60	51.00	49.50	55.00	51.50	52.50
Stand. Dev.	5.776	5.621	3.674	4.159	----	3.146	14.212	4.505	8.312
F Number	5	5	5	5	0	5	5	5	5
Avg. St. Sc.	44.00	44.00	47.80	45.60	----	48.00	49.60	49.40	52.00
Stand. Dev.	3.535	5.873	6.723	5.176	----	3.674	8.961	5.128	12.206

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

PSYCHOLOGY 128

TABLE 23

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		PSYC 128	PSYC 128	PSYC 128	PSYC 128	PSYC 128	PSYC 128	PSYC 128	PSYC 128	PSYC 128
A	Number									
	Avg. St. Sc.									
	Stand. Dev.									
B	Number	7	7	7	5	2	7	7	7	7
	Avg. St. Sc.	56.00	57.29	57.00	49.40	62.00	57.00	48.29	52.71	48.57
	Stand. Dev.	9.678	8.380	7.937	11.326	14.142	5.744	8.199	7.521	11.341
C	Number	14	14	14	12	2	14	13	14	13
	Avg. St. Sc.	53.86	51.79	50.79	49.17	54.00	50.79	44.92	54.36	49.69
	Stand. Dev.	9.630	8.247	9.585	5.765	1.414	8.441	14.320	3.733	7.454
D	Number	6	6	6	6	0	6	6	6	6
	Avg. St. Sc.	38.67	41.33	41.83	39.17	0.00	40.50	43.83	48.67	49.83
	Stand. Dev.	5.750	5.573	7.626	4.996	0.000	9.049	8.424	8.824	6.177
F	Number	1	1	1	0	0	1	1	1	1
	Avg. St. Sc.	30.00	30.00	42.00	0.00	0.00	27.00	69.00	45.00	60.00
	Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016

TABLE 24

CGP Subtests

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN: PSYCHOLOGY 201		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		PSYC 201	PSYC 201	PSYC 201	PSYC 201	PSYC 201	PSYC 201	PSYC 201	PSYC 201	PSYC 201
A	Number	26	26	26	17	9	26	26	26	26
	Avg. St. Sc.	59.04	58.42	58.31	53.94	57.78	55.15	52.19	56.08	52,38
	Stand. Dev.	6.427	6.159	5.760	8.264	6.572	6.576	7.776	7.724	11.063
B	Number	11	11	11	7	4	11	11	11	10
	Avg. St. Sc.	53.73	54.91	55.27	51.86	56.25	54.00	53.64	56.55	48.40
	Stand. Dev.	6.214	8.030	7.457	5.209	6.130	6.434	7.775	7.979	9.991
C	Number	3	3	3	3	0	3	3	3	3
	Avg. St. Sc.	50.00	46.33	47.00	55.67	0.00	49.00	50.33	52.33	58.00
	Stand. Dev.	5.567	7.637	8.185	4.932	0.000	4.582	2.516	8.144	11.532
D	Number									
	Avg. St. Sc.									
	Stand. Dev.									
F	Number									
	Avg. St. Sc.									
	Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

SECRETARIAL 111

TABLE 25

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111
A	Number	10	10	10	7	3	10	10	10	10
	Avg. St. Sc.	52.40	54.90	56.40	52.86	63.33	56.70	50.60	54.00	50.40
	Stand. Dev.	12.598	10.016	5.966	11.596	8.504	5.907	8.733	7.287	10.844
B	Number	14	14	14	11	3	14	14	14	13
	Avg. St. Sc.	45.93	45.64	49.50	45.64	56.00	49.50	47.50	52.43	53.92
	Stand. Dev.	8.525	9.787	8.290	6.815	9.165	9.171	7.068	7.387	5.978
C	Number	9	9	9	7	2	9	9	9	9
	Avg. St. Sc.	52.11	50.44	49.22	46.00	59.50	48.67	50.56	51.56	49.89
	Stand. Dev.	9.293	8.733	11.31	10.878	6.363	13.564	10.584	10.162	10.215
D	Number	2	2	2	1	1	2	2	2	0
	Avg. St. Sc.	35.50	37.00	44.50	33.00	43.00	39.00	24.00	32.00	0.00
	Stand. Dev.	12.020	1.414	0.707	0.000	0.000	8.485	2.828	5.656	0.000
F	Number									
	Avg. St. Sc.									
	Stand. Dev.									

TABLE 26

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

SECRETARIAL 121

		CGP Subtest								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		SECR 121	SECR 121	SECR 121	SECR 121	SECR 121	SECR 121	SECR 121	SECR 121	SECR 121
A	Number	8	8	8	5	3	8	8	8	8
	Avg. St. Sc.	51.25	51.75	56.00	45.60	61.33	53.63	48.88	56.38	56.13
	Stand. Dev.	8.860	8.940	3.625	4.827	5.686	6.501	12.495	10.782	8.806
B	Number	7	7	7	5	2	7	7	7	6
	Avg. St. Sc.	47.00	47.29	51.71	49.40	58.00	53.57	49.00	54.57	55.17
	Stand. Dev.	9.609	9.411	9.877	13.813	8.485	10.875	11.704	3.644	4.833
C	Number	4	4	4	4	0	4	4	4	4
	Avg. St. Sc.	47.25	47.75	52.75	43.50	0.00	51.00	46.75	51.00	48.00
	Stand. Dev.	10.372	14.103	11.842	4.932	0.000	11.747	7.135	3.559	6.164
D	Number	3	3	3	2	1	3	3	3	2
	Avg. St. Sc.	48.33	44.67	55.67	53.00	49.00	48.00	48.00	54.67	49.50
	Stand. Dev.	11.150	11.547	5.131	4.242	0.000	5.196	5.000	2.886	12.020
F	Number	1	1	1	1	0	1	1	1	1
	Avg. St. Sc.	54.00	51.00	61.00	51.00	0.00	57.00	50.00	58.00	49.00
	Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

SOCIOLOGY 101

TABLE 27

CGP Subtests

		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101
A	Number	1	1	1	1	--	1	1	1	1
	Avg. St. Sc.	59.00	63.00	63.00	65.00		54.00	48.00	68.00	49.00
	Stand. Dev.	--	--	--	--	--	--	--	--	--
B	Number	6	6	6	4	2	6	6	6	6
	Avg. St. Sc.	60.33	59.67	61.17	52.75	55.500	60.50	47.833	60.83	45.00
	Stand. Dev.	7.118	6.022	6.047	11.757	0.707	6.685	13.407	8.010	6.957
C	Number	13	13	13	8	5	13	13	13	13
	Avg. St. Sc.	49.54	51.384	50.153	48.625	54.200	51.230	50.85	50.77	47.08
	Stand. Dev.	8.733	6.982	8.070	8.814	2.387	7.084	7.186	10.948	7.193
D	Number	6	6	6	3	3	6	6	6	6
	Avg. St. Sc.	56.67	56.00	54.67	53.67	54.67	53.500	49.166	56.166	47.50
	Stand. Dev.	5.887	3.794	4.885	5.131	6.806	11.912	4.490	8.424	13.619
F	Number									
	Avg. St. Sc.									
	Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

SPANISH 101

TABLE 28

		CGP Subtests								
		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101
A	Number	6	6	6	2	4	6	6	6	5
	Avg. St. Sc.	61.83	60.83	60.83	53.00	64.25	60.00	50.67	59.50	51.40
	Stand. Dev.	9.600	8.998	6.462	0.000	6.551	14.071	10.557	3.885	8.619
B	Number	9	9	9	6	3	9	9	9	9
	Avg. St. Sc.	56.00	54.33	56.89	55.67	61.67	52.33	49.67	55.33	51.78
	Stand. Dev.	10.594	8.062	7.149	8.524	6.506	6.383	5.979	10.641	11.233
C	Number	10	10	10	8	2	10	10	10	10
	Avg. St. Sc.	60.10	59.80	56.10	54.38	53.50	57.00	51.20	56.60	46.90
	Stand. Dev.	8.40	8.495	8.438	6.116	2.121	9.695	6.356	4.452	10.049
D	Number	3	3	3	3	0	3	3	3	2
	Avg. St. Sc.	57.00	54.00	51.33	53.00	0.00	57.00	53.33	50.00	44.00
	Stand. Dev.	2.645	7.211	7.505	7.000	0.000	6.000	6.658	5.291	19.798
F	Number	1	1	1	1	0	1	1	1	1
	Avg. St. Sc.	68.00	62.00	45.00	53.00	0.00	42.00	54.00	50.00	32.00
	Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010

TABLE 29

SIGNIFICANCE OF CORRELATION COEFFICIENTS

BASED ON VARIOUS-SIZED SAMPLES

NUMBER OF CASES IN SAMPLE	MAGNITUDE OF CORRELATION COEFFICIENTS REQUIRED TO BE SIGNIFICANT	
	at .01 level	at .05 level
3 or less	1.00	.997
10.....	.77	.63
20.....	.56	.44
30.....	.46	.36
40.....	.39	.30
50.....	.35	.27
60.....	.33	.25
70.....	.30	.23
80.....	.28	.22
90.....	.27	.21
100.....	.25	.20
200.....	.18	.14
300.....	.15	.11
400.....	.13	.10
500.....	.12	.09
1000.....	.08	.06

TABLE 30

CORRELATION COEFFICIENTS

BETWEEN FALL QUARTER GRADES IN COURSES

AND CGP SUBTESTS

Fall Quarter Grades in:		Reading	Verbal	Sentences	Mathematics I	Mathematics II	Year 2000	Mosaic Comparisons	Letter Groups	Academic Motivation
ACCT 111	N =	.49 * 48	.48 * 48	.14 ns 48	.23 ns 32	.66 * 16	.38 * 48	.23 ns 48	.19 ns 48	.07 ns 46
ARTS 111	N =	.51 ** 26	.56 * 26	.39 ns 26	.61 * 20	.69 ns 6	.63 * 26	.22 ns 26	.49 ** 26	-.04 ns 23
BIOL 101	N =	.43 * 137	.41 * 137	.55 * 137	.21 ** 93	.36 * 44	.26 * 137	.22 ** 137	.40 * 137	.23 ** 134
BUAD 100	N =	.38 * 100	.41 * 100	.27 * 100	.33 * 73	.49 ** 26	.34 * 100	.01 ns 100	.11 ns 100	.06 ns 94
CHEM 111	N =	.20 ns 26	.21 ns 26	.36 ns 26	.16 ns 15	.63 ** 11	.40 ns 26	.11 ns 26	.29 ns 26	-.08 ns 26
DAPR 106	N =	.63 * 27	.52 ** 27	.47 ** 27	.32 ns 15	.87 * 12	.58 * 27	.15 ns 27	.26 ns 27	.12 ns 25
DRFT 111	N =	.17 ns 24	.41 ns 24	.35 ns 24	.50 ns 16	-.46 ns 8	.26 ns 24	.24 ns 23	.19 ns 24	.13 ns 24
ECON 211	N =	.21 ns 19	.12 ns 19	.16 ns 19	.18 ns 14	.90 ns 5	.32 ns 19	.59 ns 19	.20 ns 19	-.32 ns 19
ENGL 101	N =	.29 * 143	.33 * 144	.31 * 144	.36 * 96	.08 ns 47	.33 * 144	.19 ns 143	.18 ns 144	.13 ns 138
ENGL 111	N =	.12 ns 164	.17 ns 164	.33 * 164	.07 ns 111	.46 * 53	.19 ns 164	.14 ns 164	.14 ns 164	.31 * 161
ENGR 100	N =	-.05 ns 24	.09 ns 24	.35 ns 24	.34 ns 12	.32 ns 12	.35 ns 24	-.20 ns 23	-.09 ns 24	-.40 ns 24
HIST 101	N =	.24 ns 53	.27 ** 53	.35 * 53	-.10 ns 31	.50 ** 22	.16 ns 53	.30 ** 53	.03 ns 53	-.02 ns 51
HIST 111	N =	.16 ns 105	.12 ns 105	.25 * 105	.19 ns 76	.36 ns 29	.23 ** 105	.30 * 105	.17 ns 105	.27 * 102
HLTH 100	N =	.42 ns 21	.28 ns 21	.18 ns 21	.13 ns 14	-.38 ns 6	.13 ns 21	.00 ns 21	.25 ns 21	-.11 ns 20
INDT 111	N =	.47 ns 17	.66 ** 17	.61 ** 17	.49 ns 11	.37 ns 6	.43 ns 17	.40 ns 16	.03 ns 17	-.43 ns 17
MATH 101	N =	.41 * 40	.39 * 40	.57 * 40	.56 * 23	.49 ns 17	.59 * 40	.13 ns 40	.46 * 40	-.01 ns 37
MATH 121	N =	-.17 ns 20	.02 ns 20	.03 ns 20	.03 ns 11	.81 * 9	.42 ns 20	.19 ns 19	.19 ns 20	.06 ns 20
MATH 151	N =	.38 * 50	.43 * 50	.60 * 50	.60 * 37	.63 ** 12	.65 * 50	.06 ns 50	.39 * 50	.29 ** 48
MATH 161	N =	.36 * 60	.20 ns 60	.40 * 60	.14 ns 32	.57 * 28	.33 * 60	.31 ** 60	.37 * 60	.33 ** 58
MATH 181	N =	.16 ns 52	.23 ns 52	.21 ns 52	-.04 ns 37	.55 ns 15	.12 ns 52	.07 ns 51	.18 ns 52	.35 * 50
NASC 111	N =	.56 * 49	.54 * 49	.42 * 49	.42 ** 35	.39 ns 14	.43 * 49	.10 ns 48	.29 ns 49	.06 ns 47
PSYC 128	N =	.67 * 28	.68 * 28	.62 * 28	.65 * 23	.50 ns 4	.71 * 28	-.07 ns 27	.36 ns 28	-.12 ns 27
PSYC 201	N =	.49 * 40	.50 * 40	.45 * 40	.37 ns 27	-.34 ns 13	.26 ns 40	-.02 ns 40	.16 ns 40	.04 ns 39
SECR 111	N =	.12 ns 35	.26 ns 35	.30 ns 35	.48 ** 26	.29 ns 9	.39 ** 35	.32 ns 35	.34 ns 35	.13 ns 32
SECR 121	N =	.05 ns 23	.16 ns 23	-.04 ns 23	.00 ns 17	.52 ns 6	.17 ns 23	.06 ns 23	.05 ns 23	.43 ns 21
SOCI 101	N =	.17 ns 26	.24 ns 26	.41 ns 26	.10 ns 16	.37 ns 10	.21 ns 26	.05 ns 26	.29 ns 26	-.05 ns 26
SPAN 101	N =	-.01 ns 29	.07 ns 29	.41 ns 29	.02 ns 20	.54 ns 9	.19 29	-.15 ns 29	.39 ns 29	.29 ns 27

* Significant at the .01 level of confidence.
** Significant at the .05 level of confidence.
ns No significant at either of these levels.

Differential Performances on the CGP

Between Community College Students:

Local, State, and National

Research Report No. 2-72

Director of Institutional Research

M. Douglas Reed

INTRODUCTION

Part of the service offered by the College Entrance Examination Board (CEEB) in its Comparative Guidance and Placement (CGP) Program are comparative statistical studies of performances at the local, state, and national levels on academic subtests as well as Interest Index scores. Data are available which allow for comparisons between academic performances of students at Central Virginia Community College, students in the Virginia Community College System, and students in public comprehensive community colleges. These data may be used to measure differential ability at each of these levels.

As part of any college's assessment of how well it is educating the students who do course work there, is an indication of how well they have progressed academically from some starting point. An institution can make more accurate generalizations about how well it has done its job if it knows better the preparation of its entering students upon arrival. After assessing the ability of its graduates, the institution may make one conclusion knowing that its entering students (prior to any collegiate instruction) were lower in ability than either the average for the Virginia Community College System or all the public comprehensive community colleges in the country (which participate in the CGP); it would make a different one upon finding the reverse to be true i.e., that its entering students were higher in ability than the other two groups. It would appear that a more positive effect was generated by the college in the former case rather than in the latter.

Knowing the relative ability of entering students is important for trend analysis of graduates of high schools, and for long-range planning of curricula requiring differential ability levels.

THE PROBLEM

Were the students entering Central Virginia Community College in the fall of 1970 and in the fall of 1971 different in ability (as measured by the CGP subtest scores) than either the students in the entire (or overall) Virginia Community College System or those in all public comprehensive community colleges? Further, are the Virginia Community College System students different in ability from those in all public comprehensive community colleges? Additionally, were Central Virginia Community College students entering in 1970 and those entering in 1971 different in ability?

PROCEDURE

The typical or average performance (on each CGP subtest) of each of four groups were derived. (See Table I). These performances were then compared by implementing the "t" test of significant differences between averages (arithmetic means). There were six comparisons on eight subtests totalling 48 statistical tests. (See Table II).

Students entering CVCC in the fall of 1971 (group X_1) were compared to: students entering CVCC in the fall of 1970 (group X_2) (Comparison A); students entering the several schools in the Virginia Community College System (group X_3) in the fall of 1970 (Comparison B); and students entering the many schools constituting PCCC: "all public

comprehensive community colleges" (group X_4) in the fall of 1970 (Comparison C). Students entering Central Virginia Community College in the fall of 1970 (group X_2) were compared to: students entering the Virginia Community College System (group X_3) in the fall of 1970 (Comparison D); and students entering PCCC (group X_4) in the fall of 1970 (Comparison E). Further, students entering the Virginia Community College System (group X_3) in the fall of 1970 were compared to students entering PCCC (group X_4) in the fall of 1970 (Comparison F).

FINDINGS

Table II.

Of the six comparisons on eight subtests, there were differences found between each of the four groups on the Academic Motivation subtest. No difference was discovered between any of the four groups on the Verbal subtest. In the other six subtests, three of the four groups differentiated themselves from each other.

Comparison A.

Group X_1 was significantly lower in ability than group X_2 on the Sentences, Math B, Letter Groups, and Academic Motivation subtests. There was no difference found on the other four subtests.

Comparison B.

Group X_1 was significantly higher in ability than group X_3 on the Reading, Math A, Math B, Year 2000, Letter Groups, and Academic Motivation. The other two subtests were not significantly different.

Comparison C.

Group X_1 was significantly higher in ability than group X_4 on all subtests but Verbal.

Comparison D.

Group X_2 was significantly higher in ability than group X_3 on all subtests but Verbal and Math B.

Comparison E.

Group X_2 was significantly higher in ability than group X_4 on all subtests but Verbal and Math B.

Comparison F.

Group X_3 was significantly higher in ability than group X_4 on all subtests but Verbal and Letter Groups.

Table III gives a visual display of the relationship found in comparisons A-F.

CONCLUSIONS

Since there appears to be a clear difference between community college student[illegible]t the three levels (local, state, and national) in entering ability, we must conclude that there is some systematic relationship, such as differential ability. This would lead us to careful implications as to the amount of "credit" that the College can take for producing graduates who might appear above average when compared to either the VCCS or PCCC.

It may be, however, that since there are so many more students in the national population (PCCC) than in either the VCCS or locally

(CVCC) what is a significant difference may be more attributable to regression toward the mean.[1] This may also explain the generally better showing for CVCC than for the VCCS.

---

[1]The tendency for scores to move closer to the average, the greater the number in the sample.

TABLE I

Groups		Reading	Verbal	Sentences	Math A	Math B	Year 2000	Letter Groups	Academic Motivation
All public comprehensive	Mean	49.49	50.04	49.04	48.31	59.48	49.77	52.37	48.44
Community Colleges	S.D.	10.13	9.80	9.72	9.27	8.55	11.23	9.59	9.04
All Programs, All Students	Variance	102.62	96.04	94.48	85.93	73.10	126.11	91.97	91.72
X_4	N	42965	42932	42958	37067	5395	42770	42224	38240
Total Virginia Community	Mean	50.17	49.91	49.94	48.83	60.29	50.74	52.26	48.08
College System	S.D.	9.82	9.82	9.59	9.21	9.03	10.88	9.35	8.74
All Programs, All Students	Variance	96.43	91.97	84.82	81.54	65.93	118.37	87.42	76.39
X_3	N	7608	7606	7607	6733	862	7609	7608	7009
Total Central Virginia	Mean	51.11	49.87	51.23	49.97	59.23	52.207	53.83	50.858
Community College	S.D.	9.16	8.76	8.53	9.30	9.09	9.76	8.50	9.31
All Programs, All Students	Variance	83.91	76.74	72.76	86.49	82.63	95.26	72.25	86.68
1970-71	N	477	477	477	353	124	477	477	404
X_2									
Total Central Virginia	Mean	50.84	50.08	50.35	49.58	56.83	51.58	52.07	50.15
Community College	S.D.	10.03	9.73	9.41	9.10	8.58	10.57	8.86	9.07
All Programs, All Students	Variance	100.60	94.67	88.55	82.81	73.62	111.72	78.50	82.26
1971-72	N	756	756	756	582	173	756	755	730
X_1									

TABLE II

Comparisons	Groups	CGP Subtests: Reading "t"	Verbal "t"	Sentences "t"	Math A "t"	Math B "t"	Year 2000 "t"	Letter Groups "t"	Academic Motivation "t"
A	X_1 CVCC '71 X_2 CVCC '70	.486 ns	.393 ns	1.695 *	.627 ns	2.297 *	1.609 ns	1.702 *	1.241 *
B	X_1 CVCC '71 X_3 VCCS	1.756 *	.459 ns	1.145 ns	1.909 *	4.884 *	2.080 *	2.091 *	5.894 *
C	X_1 CVCC '71 X_4 PCCC	3.670 *	.112 ns	3.795 *	3.341 *	4.000 *	4.665 *	1.843 *	5.050 *
D	X_2 CVCC '70 X_3 VCCS	2.170 *	.096 ns	3.190 *	2.249 *	1.230 ns	3.169 *	3.896 *	5.858 *
E	X_2 CVCC '70 X_4 PCCC	3.840 *	.421 ns	5.571 *	3.339 *	.303 ns	5.421 *	3.727 *	5.200 *
F	X_3 VCCS X_4 PCCC	5.570 *	1.092 ns	7.840 *	4.333 *	2.702 *	7.153 *	.947 ns	3.172 *

*: Significant at the .05 level of confidence
ns: Not significant at the .05 level of confidence.

TABLE III

Levels	Reading	Verbal	Sentences	Math A	Math B	Year 2000	Letter Groups	Academic Motivation
A								CVCC '70
B	CVCC '70 CVCC '71		CVCC '70	CVCC '70 CVCC '71		CVCC '70 CVCC '71	CVCC '70	CVCC '71
C	VCCS		CVCC '71 VCCS	VCCS	VCCS PCCC CVCC '70	VCCS	CVCC '71	PCCC
D	PCCC	CVCC '71 VCCS CVCC '70 PCC	PCCC	PCCC	CVCC '71	PCCC	PCCC VCCS	VCCS

Groups at level A are significantly higher (in the ability measured by each CGP subtest where the group appears) than groups at level B, which are significantly higher than groups at level C, which are significantly higher than groups at level D.

Groups clustered at any one level are not significantly different from each other.